NATIONAL WEATHER SERVICE
DES MOINES IA

- **Winter Weather Awareness Day**
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Volume 2, Issue 3 Fall 2008/Winter 2009

Winter Weather Awareness Day—November 13, 2008

by Jeff Johnson, Warning Coordination Meteorologist

The National Weather Service in conjunction with the Iowa Homeland Security and Emergency Management Agency have declared **November 13, 2008** as Winter Weather Awareness Day in Iowa. Each year, winter returns to Iowa and can produce snow storms, blizzards, ice storms, periods of extremely cold temperatures, and dangerous wind chill temperatures. This year, the National Weather Service in Des Moines will issue three Public Information Statements highlighting winter hazards.

Here are useful winter weather safety links:
Winter Weather Preparedness:
http://www.crh.noaa.gov/dmx/?n=winter

National Winter Weather Preparedness:
http://www.weather.gov/om/winter/index.shtml

Be Ready Iowa! http://www.bereadyiowa.org/

Official Three-Month Outlooks:
http://www.cpc.ncep.noaa.gov/products/predictions/90day/

March, 2007 in Odebolt, Iowa. Courtesy of Pam Hansen

Attention central Iowa media: Getting the word out about winter weather preparedness is vital to the success of Winter Weather Awareness Day. Please contact Jeff Johnson, National Weather Service, Des Moines, at 515-270-4501 Ext. 726 or e-mail at jeff.johnson@noaa.gov to schedule an interview. Thank you.

SKYWARN™ Recognition Day

by Shane Searcy, Information Technology Officer

All interested ham radio operators and SKYWARN™ spotters will want to mark the first weekend in December on your calendar. The **10th Annual SKYWARN™ Recognition Day** will be held at National Weather Service Forecast Offices, Regional Headquarters, and National Centers (e.g. the National Hurricane Center), including the central Iowa office in Johnston, from **6 pm Friday, December 5, 2008** to **6 pm Saturday, December 6, 2008**.

SKYWARN™ Recognition Day (SRD) was developed in 1999 by the National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer SKYWARN™radio operators make to the National Weather Service (NWS). During the day SKYWARN™ operators visit NWS offices and contact other radio operators across the world. This is our way of saying "Thank You" to the numerous amateur radio operators that provide severe storm reports and emergency communications to the office and to the network control operators that handle all the traffic.

In late May, 2008, we all remember the devastation caused by the EF-5 tornado that struck Parkersburg, IA. Some of the very first verification reports arrived in the Johnston NWS office via ham radio; once again proving the worth of this valuable hobby and service. It is with these real-time, "eye-ball" reports, that the severity of the situation can be shared with the public, the media, and other public service organizations, hopefully adding urgency to any actions required to protect their lives and the lives of others. Other recent cases such as Hurricane Ike continue to demonstrate the usefulness of amateur radio for real-time weather reports and in providing emergency communication.

Additional information will be posted as necessary on the internet at http://hamradio.noaa.gov. We hope to see you at our office!

Rare…but Not Unusual Heavy Snow Event *by Ken Podrazik, Meteorologist Intern*

With winter weather upon us in Iowa, heavy snow becomes some folk's burdens and other people's fortune. If you're a kid in school with a couple of snow days or a private snow plow operator you welcome the snowfall. If you're a truck driver out on the road or a family travelling across country for the holidays you wish for the dry weather.

Heavy snow across Iowa can occur quickly and in small areas. This is what happened on Sunday, February 3rd, 2008 in south-central to southeast Iowa. A very intense and quick moving upper level disturbance (shortwave trough) affected northern Missouri and southern Iowa with heavy snow, freezing rain, and even a few thunderstorms. The first snowfall report was 1.0" from the Iowa Department of Transportation at 1034 am CST in Lamoni, Iowa. A Cooperative Observer (COOP) in Bussey, Iowa, and a trained spotter just north of Oskaloosa, Iowa, reported snowfall totals of 10.5" and 12.0" respectively by the late afternoon on Sunday between 430 pm and 5 pm CST. The first report from the Bussey COOP was 3.0" at 227 pm CST. So, just within over a 2 hour time span, they received 7.5" of heavy snow… that's nearly 4.0" per hour! The snow tapered off between 6 pm and 7 pm CST. (See Figure 1 for snowfall totals).

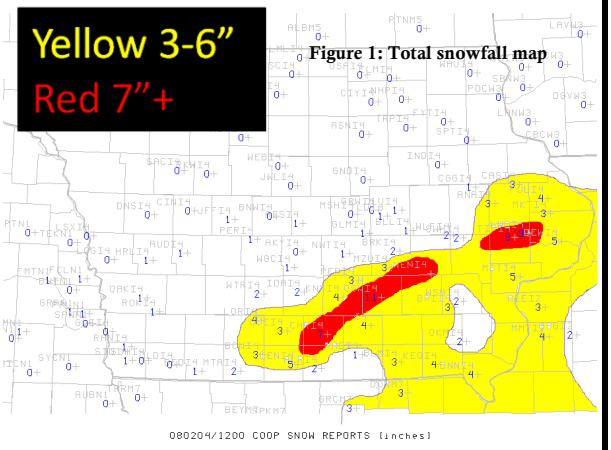


Figure 1: Total snowfall map

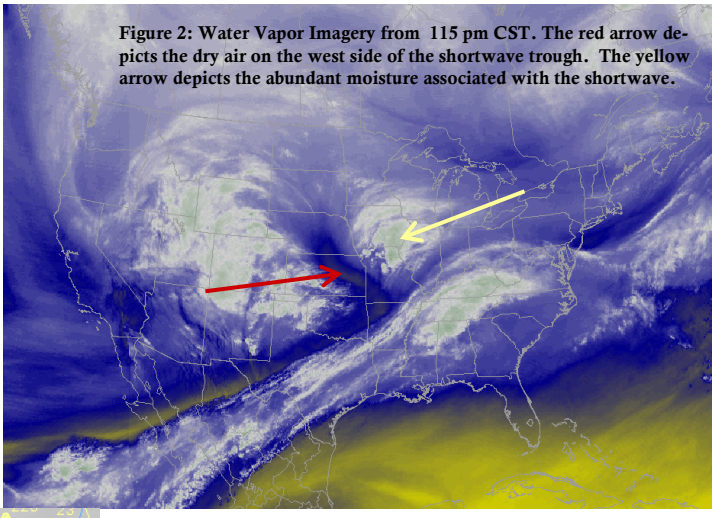


Figure 2: Water Vapor Imagery from 115 pm CST. The red arrow depicts the dry air on the west side of the shortwave trough. The yellow arrow depicts the abundant moisture associated with the shortwave.

Analysis of the mid levels in the atmosphere depicted this shortwave ejecting out of the Central Rockies into the Central Plains from Sunday morning on the 3rd into the early afternoon. Water vapor satellite imagery (Figure 2) at 115 pm CST showed rapid intensification of the shortwave from late morning into early afternoon as dry air became wrapped around the low pressure center on the west side. Also evident in the water vapor image is the abundant moisture available in the upper levels of this system. To clarify, dryer air on water vapor imagery is depicted by the yellows, oranges, and reds; while the whites, greens, and grays indicate moisture. The morning surface analysis at 6 am CST displayed that the area of concern in south-central to southeast Iowa had freezing temperatures in place along with several stations reporting fog and mist. The importance of the fog is that since the lower levels of the atmosphere were already saturated or near saturation, any snow that developed would not fall through much, if any, dry air on the way to the ground. In some cases, the drier air at the surface or lower levels will take some time to saturate the column. So with snow falling through the atmosphere, this may cause the majority of the flakes to evaporate before touching the ground.

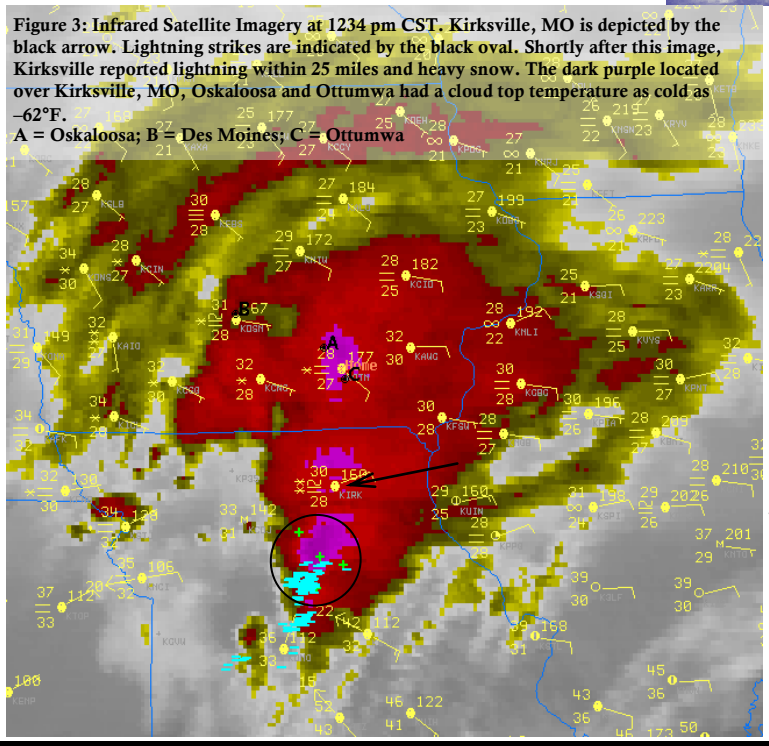


Figure 3: Infrared Satellite Imagery at 1234 pm CST. Kirksville, MO is depicted by the black arrow. Lightning strikes are indicated by the black oval. Shortly after this image, Kirksville reported lightning within 25 miles and heavy snow. The dark purple located over Kirksville, MO, Oskaloosa and Ottumwa had a cloud top temperature as cold as –62°F.
A = Oskaloosa; B = Des Moines; C = Ottumwa

Infrared satellite imagery measures the cloud top temperatures from the wavelength of the electromagnetic radiation emitted from the clouds as well as the surface. So, the higher the clouds, generally the colder and more white or blue they appear. In this event, at around 1245 pm CST, the coldest cloud top temperature was -62°F just over Oskaloosa and another area in northern Missouri located over Kirksville. Shortly afterwards, Kirksville, Missouri, reported lightning within 25 miles of the airport with heavy snow. This is known as thunder snow. At the same time, Oskaloosa, Iowa, also reported heavy snow, but no lightning was reported. Automated surface observations and satellite imagery generally only sense cloud to ground lightning. In this

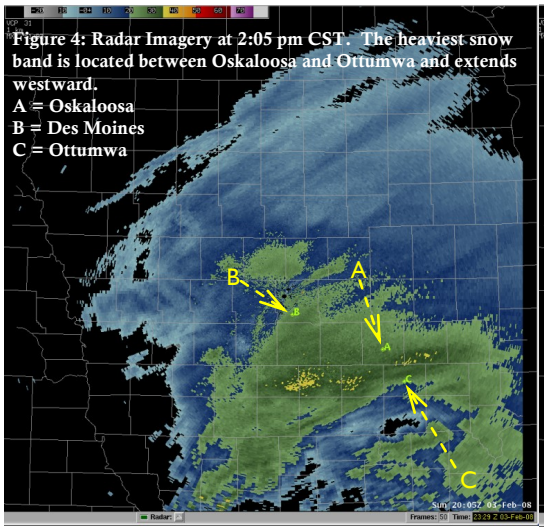


Figure 4: Radar Imagery at 2:05 pm CST. The heaviest snow band is located between Oskaloosa and Ottumwa and extends westward.
A = Oskaloosa
B = Des Moines
C = Ottumwa

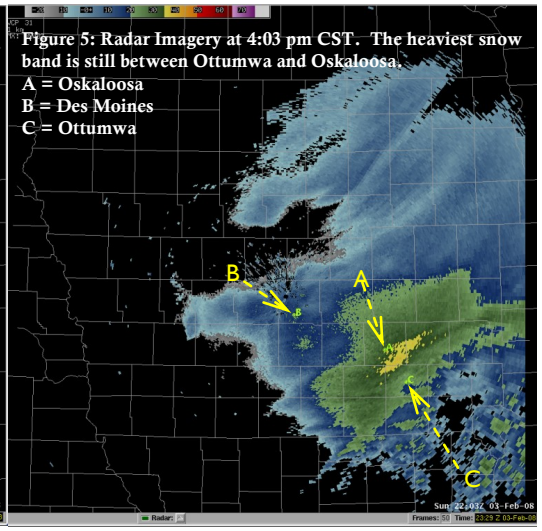


Figure 5: Radar Imagery at 4:03 pm CST. The heaviest snow band is still between Ottumwa and Oskaloosa.
A = Oskaloosa
B = Des Moines
C = Ottumwa

scenario, with the similar cloud top temperatures, there was likely some brief cloud-to-cloud lightning strikes that were not sensed by either the satellite or the automated surface observation (See figure 3 for a closer look). There was also an "ear-witness" of the thunder in Oskaloosa that day. Lastly, in the pair of radar images shown (Figures 4 & 5), the heaviest band of snow set up between Oskaloosa (A) and Ottumwa (C), which is less than 30 miles. There were essentially 3 separate heavy bands that affected the Oskaloosa and Bussey area between noon and 5 pm CST.

There were several snowfall reports from COOP Observers and trained spotters. The lowest snowfall amount was 0.3" in Tama, Iowa, while the highest snowfall amount was 12.0" in Oskaloosa, Iowa. Liquid equivalent amounts were from a few hundredths of an inch to 1.12" in Oskaloosa. This relates to about an 11 to 1 snow to liquid ratio in Oskaloosa.

So this winter when your friends or family receive little or no snow and you end up getting half a foot or more. Just remember, depending on how you look at it; you're either lucky or unlucky to receive heavy snow in this type of event. Des Moines, Iowa, on average receives at least 1.0" of snow 10 days a year and 4.0" or greater nearly 2 days a year. Many of these heavier snow events are related to the larger scale systems that cover a couple of states or more, but a few of these heavy snow days are related to the smaller scale systems like the Oskaloosa and Bussey event earlier this year. Although a rare event, to have such a small, heavy snow band occur, these events are not unusual in Iowa, as well as the Midwest.

Holiday Climatology for Des Moines and Waterloo

Des Moines	Average High Temperature	Average Low Temperature	Average Daily Temperature	Highest Liquid Equivalent Precipitation (Year)	Highest Snowfall Amount (Year)	Coldest Temperature (Year)	Warmest Temperature (Year)
Thanksgiving	41.6°F	23.7°F	32.7°F	0.17" (1956)	9.3" (1993)	2°F (1950)	63°F (2006, 2001, 1998, 1988, 1976)
Christmas Eve	31.8°F	15.3°F	31.5°F	0.96" (1895)	7.0" (1909)	-19.0°F (1983)	69.0°F (1889)
Christmas Day	31.5°F	14.6°F	23.1°F	0.57" (1882)	4.8" (1941)	-16°F (1878)	58°F (1936)
New Year's Eve	31.0°F	14.9°F	23.0°F	1.37" (1931)	7.7" (1977)	-15°F (1968)	61°F (1965)
New Year's Day	30.1°F	13.9°F	22.0°F	1.55" (1942)	19.8" (1942)	-18°F (1887)	61°F (1897)
Waterloo	Average High Temperature	Average Low Temperature	Average Daily Temperature	Highest Liquid Equivalent Precipitation (Year)	Highest Snowfall Amount (Year)	Coldest Temperature (Year)	Warmest Temperature (Year)
Thanksgiving	38.7°F	20.2°F	29.4°F	0.24" (1977)	2.4" (1977)	-1°F (1950)	67°F (1998)
Christmas Eve	28.8°F	11.1°F	19.9°F	1.30" (1982)	6.0" (1909)	-27°F (2000)	55°F (1936)
Christmas Day	28.5°F	11.1°F	19.8°F	0.70" (1951)	7.0" (1951)	-29°F (2000)	58°F (1936)
New Year's Eve	28.7°F	11.5°F	20.1°F	0.62" (1977)	6.2" (1977)	-23°F (1976)	59°F (1965)
New Year's Day	27.6°F	10.6°F	19.2°F	0.85" (1916)	4.5" (1942)	-18°F (1974)	61°F (1897)

New Winter Weather Warning and Advisory Products

by Jeff Johnson, Warning Coordination Meteorologist

The National Weather Service in Des Moines will change to a simplified winter weather warning and advisory product suite this winter. The purpose of the change is to simplify and clarify the communication and dissemination of winter weather hazards by combining a number of advisory and warning products into categories associated with similar impacts. For example, conditions last winter that prompted the issuance of separate winter weather, snow and blowing snow advisories will be issued as winter weather advisories this winter. Certain hazards will retain their own product names due to the uniqueness of their impacts. There will be no change to the winter weather ***watch*** products. Refer to the two tables on Page 10 for a list of the old and new winter weather advisory and warning products.

Dallas Center is StormReady® *by Melinda Albrecht, General Forecaster*

Mayor Mitch Hambleton (left); Chief Deputy of the Dallas Center Fire Department, Daniel Case (center); and Mindy Albrecht, General Forecaster at the National Weather Service in Des Moines, IA.

Warning Coordination Meteorologist Jeff Johnson and StormReady® Program Assistant Melinda Albrecht from the National Weather Service in Des Moines presented Dallas Center Mayor Mitch Hambleton, Dallas Center city council members and Daniel Case, Chief Deputy of the Dallas Center Fire Department, with a recognition plaque and special StormReady® signs at the StormReady® Dedication Ceremony to recognize the city of Dallas Center as StormReady® . Dallas Center is the third StormReady® community in the WFO Des Moines County Warning Area. Dallas Center is also one of 13 Storm Ready communities across the state of Iowa, and one of more than 1300 in the US.

"StormReady® encourages communities to take a new, proactive approach to improving local hazardous weather operations and public awareness," said Jeff Johnson, Warning Coordination Meteorologist at the National Weather Service Forecast Office in Des Moines. "StormReady® arms communities, and in this case Dallas Center, with improved communication and safety skills needed to save lives and property - before and during the event."

The StormReady® program is voluntary and provides communities with clear-cut advice from a partnership between local National Weather Service forecast offices and state and local emergency managers. To be recognized as StormReady® , a community or college must:

- Establish a 24-hour warning point and emergency operations center;
- Have more than one way to receive severe weather forecasts and warnings and to alert the public
- Create a system that monitors local weather conditions
- Promote the importance of public readiness through community seminars;
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

Once again we would like to say "Congratulations" to Dallas Center on being StormReady®!

Fun Fact: The last measurable snow on Christmas Day in Des Moines was 1.0" in 1996...while in Waterloo it was 0.9" in 2004.

Normal High/Low Temperatures

Location	Nov 1	Dec 1	Jan 1	Feb 1
Des Moines	55 / 35	39 / 22	29 / 12	31 / 14
Mason City	51 / 31	33 / 17	23 / 6	24 / 7
Waterloo	53 / 32	37 / 18	26 / 7	28 / 8
Ottumwa	56 / 37	40 / 24	30 / 15	32 / 16

2007-2008 Seasonal Snowfall Statistics (July 1- June 30)

Location	Season Total	Departure	Previous Season Total
Des Moines	58.5"	+22.1"	39.3"
Mason City	34.4"	-5.0"	53.1"
Waterloo	53.9"	+19.0"	29.2"
Ottumwa	N/A	N/A	18.6"

Summer Climate Summary *by Craig Cogil, Senior Meteorologist*

Temperatures: Summer temperatures across Iowa were slightly below normal in most locations with only brief periods of hot weather. No locations in the state exceeded 100 degrees. The warmest temperature was 99 degrees which occurred in Shenandoah in early August. The southern half of the state saw the coolest departure from normal with some locations over 2 degrees below normal.

Month	Temperature	Departure from Normal	Rainfall	Departure from Normal	Temperature Ranking	Precipitation Ranking
June	69.7° F	-0.1	8.96	+4.32	66th warmest	2nd wettest
July	73.8° F	+0.0	5.88	+1.63	61st coolest	16th wettest
August	70.6° F	-0.7	2.01	-2.18	41st coolest	14th driest
September	63.6° F	+0.7	4.10	+0.69	67th warmest	47th wettest

Precipitation: Heavy rainfall that was common during the springtime continued across the southern half of the state into late summer. Precipitation amounts were over 150 percent of normal in portions of the south during the late summer. Farther north, conditions were drier with many locations struggling to reach their normal precipitation, especially in the month of August.

4 Month Temperature Average: 69.4 or 0.1 below normal.

4 Month Precipitation Total: 20.95" or 4.46" above normal.

All four months averaged within 1 degree of normal. Overall, the period ranks as the 50th coolest among 136 years of record.

This period ranks as the ninth wettest. 1993 was the most recent wetter June through September and brought nearly 10 inches more rain than this year. June, with a preliminary total of 8.96", ranks second highest for June among 136 years of record. Only June 1947 had more rainfall with a total of 10.33". This is the sixth highest calendar month total among all months (Jun 1947, Jul 1993, Aug 2007, Sep 1926, Sep 1965).

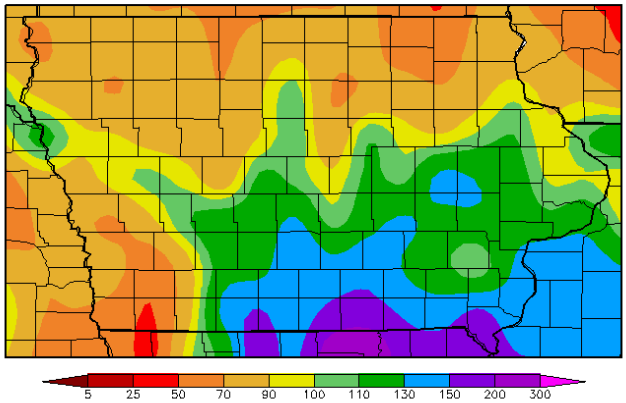
Fun Fact: Chances of a White Christmas/Thanksgiving

- 5 out of every 21 years, **Des Moines** has greater than a trace of snow on the ground on Christmas Day.
- 2 out of every 11 years, **Des Moines** receives new snowfall greater than a trace on Christmas Day.
- 2 out of every 29 years, **Des Moines** receives new snowfall greater than a trace on Thanksgiving.
- 4 out of every 7 years, **Waterloo** has greater than a trace of snow on the ground on Christmas Day.
- 5 out of every 27 years, **Waterloo** receives new snowfall greater than a trace on Christmas Day.
- 10 out every 83 years, **Waterloo** receives new snowfall greater than a trace on Thanksgiving.

Temperature extremes were very much at a minimum over this four month period. Thus, the temperature never climbed unusually high or dropped very low. Shenandoah reported the highest official temperature in the state with 99 degrees on August 3. There were only five days when the statewide average daily maximum temperature was 90 degrees or higher. Only 1915 (3 days) and 1992 (4 days) recorded fewer days above 90 than this year since 1896.

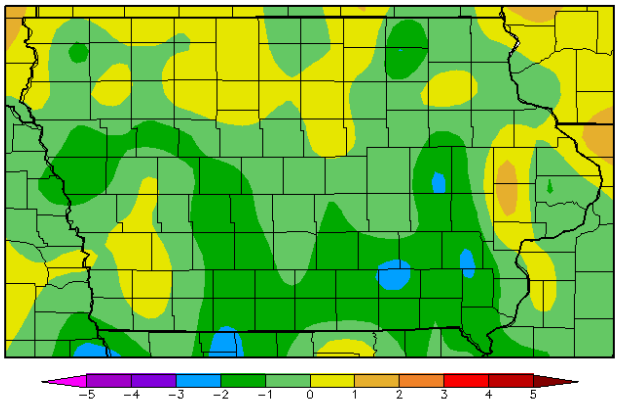
A very wet 2007, cold-wet winter of 2007-2008, cool-wet spring in 2008 and tremendous widespread heavy rainfall May 29 - June 12 all contributed to the record flooding reported in parts of Iowa during June.

Percent of Normal Precipitation (%)
7/1/2008 – 9/30/2008



Generated 10/11/2008 at HPRCC using provisional data. NOAA Regional Climate Centers

Departure from Normal Temperature (F)
7/1/2008 – 9/30/2008



Generated 10/11/2008 at HPRCC using provisional data. NOAA Regional Climate Centers

2008 Cooperative Observer Length of Service Awards

Site: Titonka, Iowa
Observer: Paul Heyer
Date: 8/28/08
Award: 10 Year Length of Service award
Presenter: Brad Fillbach, Hydrometeorological Technician (HMT), Des Moines National Weather Service

Site: Indianola, Iowa
Observer: Winston Sayre
Date: 8/26/08
Award: 20 Year Length of Service award
Picture: (left) Brad Fillbach, HMT, Des Moines…(right) Winston Sayre

Site: Leon, Iowa
Observer: James Butcher
Date: 8/26/08
Award: 20 Year Length of Service Award
Presenter: Brad Fillbach, HMT, Des Moines National Weather Service

Snowfall Measuring Tips *by Ken Podrazik, Meteorologist Intern*

During the winter months, snowfall and snow depth measurements are crucial to the National Weather Service (NWS) operations. The NWS receives snowfall and snow depth reports from a variety of sources that include the Cooperative Observer (COOP) Network, local television and radio broadcast media, trained storm spotters, and the general public. Trained spotters include local law enforcement, fire departments, emergency management, department of transportation, and the weather enthusiast; while the COOP network consists of some of the same folks, as well as farmers, bankers, city officials, airport operations, teachers, retirees, etc. COOPs have a big impact during the winter months as one of their primary roles is to measure snowfall amount, snow depth, and liquid equivalent each day for the NWS. Most COOPs report their snowfall once daily, but a handful of COOPs report every 6 hours, or four times a day.

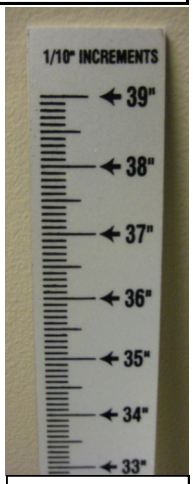


Figure 1: 40" snow stick with 1/10" increments.

Snow observations are taken on a flat, even surface, such as a snow board or sidewalk, well away from any buildings or trees in order to get an accurate reading. If observations are taken close to buildings, trees, or other obstructions, the accuracy of the observation will be inhibited due to snow drifting or lack thereof. A standard measuring stick is used to take the snowfall observations (Figures 1 and 2). Both the snowboard and standard measuring sticks are provided to COOPs by the local National Weather Service office. If you happen to be a trained storm spotter or a snow enthusiast out measuring snow, a normal yard stick or ruler would work as well. The location of your snow observations needs to be consistent and should remain in the same area at all times. When measuring snowfall, it is recommended to take between 8 and 12 different readings in and around your designated measurement area. The average between all the readings is used for the official report. New snowfall measurements are measured to the nearest tenth of an inch. For instance…if you measure 1 ¾" it would be reported as 1.8". Snow depth is reported in nearest whole inches. So, if you measure 1.8" then your snow depth would be 2". In contrast, 1.4" would be reported as 1" for the snow depth. The normal yard stick is generally broken up in increments of 1/8" or 1/16"...while the snow sticks provided by the NWS are broken up in increments of 1/10" (Figure 1). See the table below for examples of conversions. Once your snowfall report is complete, make sure to clear off the observation site in order to measure any new snow on your next report. During an event, it might be wise to have one spot designated for just new snow and another spot designated for total accumulated snow. Then when the event is over, you can add up the new snow observations and compare that with the total accumulated location. A word of caution however, sometimes during a snow event the wind will blow snow around making it difficult to obtain an accurate snowfall reading. In addition, when reporting snowfall, be sure to include your location, time of observation, when the snow began and/or ended, as well as any drifting information to the NWS.

New Snowfall		Snow Depth	
Ruler Measurement	*Reported Measurement*	Ruler Measurement	*Reported Measurement*
3 ½"	3.5"	3 ½" (3.5")	4"
2 ¾"	2.8"	2 ¾" (2.8")	3"
1 ¼"	1.3"	1 ¼" (1.3")	1"
1/8"	0.1"	1/8" (0.1")	Trace
1/16"	0.1"	1/16" (0.1")	Trace
Less than 1/8"	Trace	Less than 1/8"	Trace

(Continued on page 7)

Snowfall Measuring Tips *continued from page 6*

Obtaining the liquid equivalent of snowfall is a little more time consuming and trickier than measuring snowfall and snow depth. Equipment needed is a standard 8" or 4" rain gauge with the larger, outer tube only (Figure 3). Prior to the snowfall, remove the funnel and inner tube so that snow will accumulate inside the outer tube. At the time of observation or when the snow event has ended…fill a large bucket about a quarter to half way full with hot water. Place the outer tube with the snowfall in the bucket with the hot water. This will melt the snow inside the outer tube fairly quickly. Once all the snow is melted, pour the liquid into the inner tube using the funnel. Measure the liquid like you would normally measure rainfall amounts with a rain stick. This measurement is the liquid equivalent and is recorded to the nearest one hundredth of an inch.

Figure 2: Standard snowboard with a 20" snow stick (left); 40" snow stick (center), and yard stick (right). All snow sticks in figure are in 1/10" increments and are provided to COOPs by the National Weather Service.

Figure 3: Standard 8" rain gauge with inner tube and funnel on ground.

Outlook for the Upcoming Winter Season *by Miles Schumacher, Senior Meteorologist*

This past summer turned out to be cool and generally wet, even though August did end up drier than normal. The string of nine consecutive cooler than normal months came to an end in September, as the month ended up slightly warmer than normal.

After recent frost and freezing temperatures occurring over all of Iowa by the middle of October (slightly later than normal), thoughts begin to turn toward winter and what that may bring. Equatorial Pacific sea surface temperatures are a dominant indicator of weather patterns for the central U.S. The signal is not as clear as what we saw last year, however the tropical Pacific continues to exhibit a weak La Niña pattern with cooler than normal water noted over the central tropical Pacific. See Figure 1.

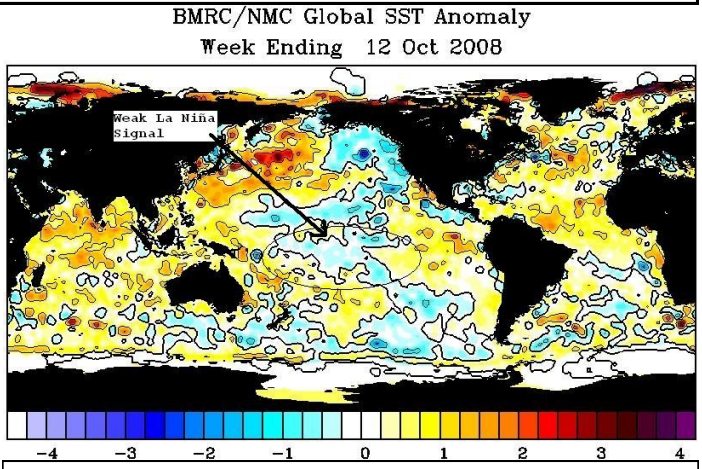


Figure 1: Sea surface temperature departure from normal.

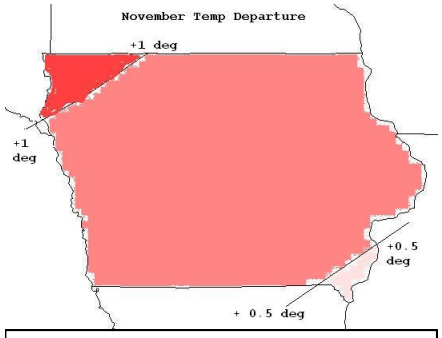


Figure 2: Mean Temperature departure for the month of November.

It is interesting to note that in spite of the weak signal, the atmospheric response has trended toward a La Niña configuration through much of the summer. There are indications that the La Niña signal will either remain the same or strengthen a bit as we move through the boreal winter. There will likely be some similarities between the upcoming winter and last winter, however due to factors beyond the scope of this writing there is likely to be more variability.

Although meteorologically, no two years are the same, one can look at weather patterns of the recent past to give some indications of near-term weather trends in the future. Based on the best fit from several of the years that were similar to the summer and early fall of 2008, and considering the state of La Niña, the month of November is likely to be a little warmer than normal across Iowa. The far southeast part of the state would be the most likely area to experience temperatures near normal. As for precipitation, it is typically drier than normal during the month of November over a large part of the central and eastern U.S. during a La Niña year. Based on the analysis of similar years, the chances are good that November will be a drier than normal month over the northwest half, and near to a little drier than normal over the southeast half. See Figure 2 and Figure 3.

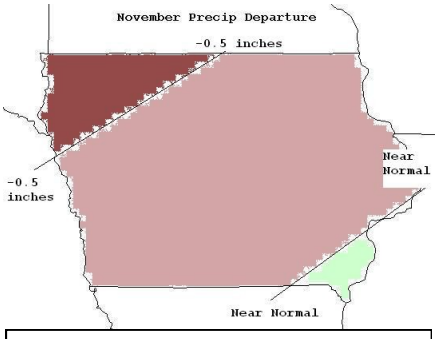


Figure 3: Precipitation departure from normal for the month of November.

The winter season long term forecasts can be quite tricky during a La Niña pattern. There is a substantial amount of volatility in the record of La Niña winters. The upcoming winter is expected to lean toward a weak La Niña type pattern. The odds would favor a slightly warmer than normal winter overall, however such a generalization could be quite misleading. This winter may

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Employee Spotlight: Jim Lee—General Forecaster

Greetings National Weather Service (NWS) customers of central Iowa! My name is Jim Lee. I am the newest addition to the NWS Des Moines forecasting team, and am very happy to be working with everyone. I grew up just down the road in Iowa City, where my parents still live as trained spotters. After high school I went to the University of Oklahoma and earned Bachelors and Masters Degrees in Meteorology, and completed research on severe thunderstorm and tornado environments. Upon completion of my college education I was hired by the NWS office in Key West, Florida, where I worked for just over five years. Needless to say, that was quite a change for a young man from Iowa! I learned a lot about tropical meteorology and endured the unenviable experience of the 2004 and 2005 hurricane seasons. I also developed my love of photography, which I used to enhance outreach efforts for the office and the NWS in general. If you have a copy of the newly released NOAA "sky watcher chart" then you have already seen some of my photos, as I took over half of those used in the chart. Early this year, I was selected for a forecaster position here at NWS Des Moines, and am very excited to be back home. I look forward to working with everyone, and am thankful for the opportunity.

Outlook for the Upcoming Winter Season *continued from page 7*

prove to be an interesting winter for a couple of reasons. First, the current La Niña pattern is quite weak and could break down easily. Second, other factors understood, indications are that this winter will exhibit much more volatility than we saw last winter. It is common in this type of pattern to see rapid shifts toward extremes, both warm and cold. Analysis of similar years suggests this winter will end up warmer than last winter on average, however we may well have colder periods than we saw last year mixed with warmer periods. Timing of when these will occur is not possible to predict, and a single strong warm or cold period can sway the mean temperature for a month. In spite of that, the odds indicate that out of the three winter months of December, January, and February, two of the three will likely be warmer than normal. One needs to look at things probabilistically. Looking at the three categories (above normal, normal, and below normal), the probability of the winter being warmer than normal is about 50%, while there is about a 25% chance of it being colder than normal, and 25% chance of it being near normal. Figure 4 shows the most likely outcome probabilistically.

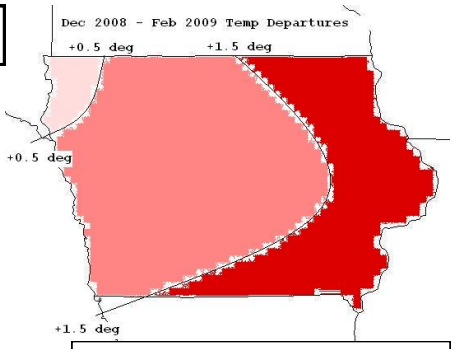

Figure 4: Temperature departure for December 2008 through February 2009.

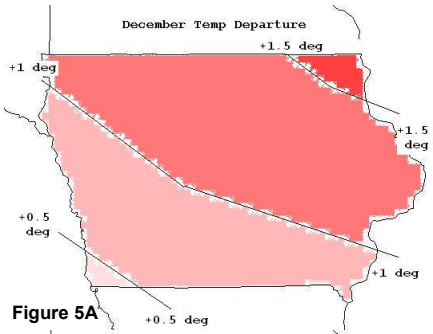

Figure 5A

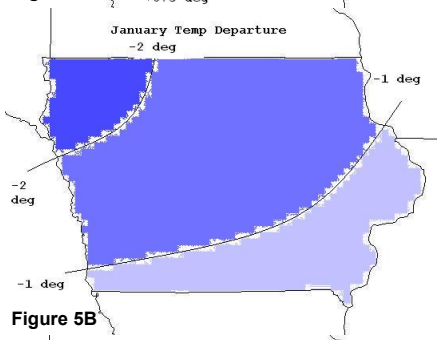

Figure 5B

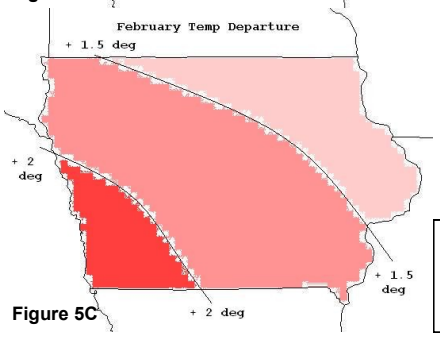

Figure 5C

Figures 5 A-C: Monthly temperature departures for December 2008 through February 2009.

As mentioned above, timing will make all the difference with the individual months. It appears the coldest part of the winter will likely occur during the first half. Assuming most of the coldest weather occurs in January, the scenario presented in Figure 5 would be fairly likely. February is likely to be dominated more by Chinook warming from the Rockies and average warmer than normal.

As for precipitation for the winter season, there is not a strong indication toward either above or below normal precipitation. It does appear that there will be an active storm track across the U.S. this winter. That being said, it is likely there will be a band of above normal precipitation along the storm track. Indications are that most of the heavier precipitation from these storms will be to the south and east of Iowa. Iowa will be on the northern edge of many of the storms. There are some indications that December will be a little above normal for precipitation, and that February will be perhaps a little below. There is no statistically significant indication for January. For that reason I will not present figures for winter precipitation showing no real trend.

These outlooks are based more heavily on statistics than many of the methods used by the Climate Prediction Center at http://www.cpc.ncep.noaa.gov/. The complete set of official forecasts from the Climate Prediction Center can be found on our website at http://www.weather.gov/climate/climate_prediction.php?wfo=dmx.

Fun Fact: 5 out of every 9 New Year's Eves in Des Moines and Waterloo will be above normal for the Average Daily Temperature. (131 and 113 years of data respectively).

National Weather Service Acknowledgements *by Meteorologist-In-Charge, Brenda Brock*

2008 – What an incredible series of severe weather events; Major winter storms followed by spring tornadoes, including a deadly and damaging EF-5, and then the Midwest Floods of 2008. Many emergency management officials, severe storm spotters, cooperative weather observers and the public provided prompt and detailed weather reports that helped us keep the public informed. Actions that resulted saved many lives and protected as much property as possible under the extreme conditions. A National Assessment Team visited Central and Eastern Iowa and reviews credit the National Weather Service and your actions. Media coverage from newspapers, radio and television was excellent, especially from stations that were even in the midst of the severe weather.

KIMT-Channel 3, New Vision Television, Mason City, and KWWL-Channel 7 TV – QNI Broadcasting, Waterloo, were presented Certificates of Recognition from the National Weather Service in Des Moines, for "Exemplary Storm Coverage of the May 25 Tornado (Aplington, Parkersburg, New Hartford, Dunkerton)" and for "Excellent News Coverage during the Midwest Floods in Iowa – 2008".

Picture 1: KIMT and New Vision Television. Station Manager Steve Martinson is fourth from the left.

Picture 2: KWWL Storm Track Team 7 and QNI Television. Station Manager Kim Leer is second from left.

Climatological Data for July to October 2008

Location	Month	Average Temp	Departure	Highest	Lowest	Rain / Snow	Departure
Des Moines	Jul	75.4°	-0.7°	93° (7th)	59° (1st, 13th)	8.18" / 0.0"	+4.00" / 0.0"
	Aug	72.6°	-1.3°	95° (3rd)	56° (29th)	1.94" / 0.0"	-2.57" / 0.0"
	Sep	65.4°	+0.3°	90° (1st)	44° (9th)	3.62" / 0.0"	+0.47" / 0.0"
	Oct	53.9°	+1.1°	80° (5th)	25° (28th)	3.73" / 0.0"	+1.11" / -0.4"
Mason City	Jul	71.8°	-0.6°	91° (15th)	52° (14th)	5.44" / 0.0"	+1.10" / 0.0"
	Aug	68.1°	-1.7°	87° (3rd)	44° (25th, 26th)	2.93" / 0.0"	-1.59" / 0.0"
	Sep	61.7°	+0.7°	86° (1st)	36° (9th)	2.81" / 0.0"	-0.47" / 0.0"
	Oct	48.7°	0.0°	78° (11th)	20° (28th)	3.34" / T	+0.84" / -0.6"
Waterloo	Jul	73.9°	+0.3°	93° (7th)	54° (14th)	5.51" / 0.0"	+1.31" / 0.0"
	Aug	69.9°	-1.3°	89° (4th)	49° (25th, 26th)	1.57" / 0.0"	-2.51" / 0.0"
	Sep	63.6°	+1.0°	89° (1st, 2nd)	38° (9th)	2.59" / 0.0"	-0.36" / 0.0"
	Oct	50.4°	+0.2°	80° (12th)	22° (28th)	1.53" / T	-0.96" / -0.1"
Ottumwa	Jul	73.2°	-3.5°	89° (7th, 20th)	55° (4th)	7.93" / 0.0"	+3.48" / 0.0"
	Aug	70.8°	-3.4°	94° (4th)	53° (30th)	2.33" / 0.0"	-1.70" / 0.0"
	Sep	64.0°	-1.6°	90° (1st)	40° (9th)	4.81" / 0.0"	+0.74" / 0.0"
	Oct	52.4°	-1.3°	79° (11th,12th)	22° (28th)	1.61" / 0.0"	-1.14" / -0.4"

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New Winter Products from the National Weather Service

Hazard	2007-2008 Warning Product	2008-2009 Warning Product
Blizzard	Blizzard	Blizzard
Freezing Rain	Ice Storm	Ice Storm
Wind Chill	Wind Chill	Wind Chill
Winter Storm	Winter Storm	Winter Storm
Heavy Snow	Heavy Snow	Winter Storm
Sleet	Sleet	Winter Storm
Hazard	**2007-2008 Advisory Product**	**2008-2009 Advisory Product**
Freezing Rain	Freezing Rain	Freezing Rain
Wind Chill	Wind Chill	Wind Chill
Mixed Winter Hazard	Winter Weather	Winter Weather
Snow	Snow	Winter Weather
Snow and Blowing Snow	Snow and Blowing Snow	Winter Weather
Sleet	Sleet	Winter Weather
Blowing Snow	Blowing Snow	Winter Weather